

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 03 August 2000 (03.08.00)	in its capacity as elected Office
International application No. PCT/US99/02208	Applicant's or agent's file reference 4263.49.96.1
International filing date (day/month/year) 02 February 1999 (02.02.99)	Priority date (day/month/year) 21 December 1998 (21.12.98)
Applicant KRISKO, Annette et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

21 July 2000 (21.07.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was ☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer</p> <p>Claudio Borton</p> <p>Telephone No.: (41-22) 338.83.38</p>
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PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 4263.49.96.1	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 99/ 02208	International filing date (day/month/year) 02/02/1999	(Earliest) Priority Date (day/month/year) 21/12/1998
Applicant CARDINAL IG COMPANY et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☒ Unity of invention is lacking (see Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 99/02208

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-12

Sheet of glass with a reflecting coating on one surface and a water-sheeting coating on the other surface; methods for rendering a surface of a glass sheet resistant to soiling and staining by sputter coating a water-sheeting layer on one side of the glass sheet and a reflecting and/or dielectric layer on the other side.

2. Claims: 13-14

Method of sputter coating two sides of a glass pane in a single pass through a sputtering apparatus, regardless of the nature of the coating.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/02208

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C03C17/34 C03C17/36 C23C14/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C03C C23C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 689 962 A (MURAKAMI KAIMEIDO KK) 3 January 1996 (1996-01-03) the whole document ---	1-12
A	EP 0 820 967 A (MURAKAMI CORP) 28 January 1998 (1998-01-28) claims ---	1-12
A	EP 0 637 572 A (CARADON EVEREST LTD) 8 February 1995 (1995-02-08) the whole document ---	1-12
A	US 5 733 660 A (TAKAMATSU ATSUSHI ET AL) 31 March 1998 (1998-03-31) abstract --- -/--	1-12



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

17 November 1999

Date of mailing of the international search report

29. 11. 99

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
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Authorized officer

Van Bommel, L

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 99/02208

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 762 674 A (WETMORE KENNETH H ET AL) 9 June 1998 (1998-06-09) abstract; figures ---	1-14
A	US 5 211 759 A (ZIMMERMANN HEINRICH ET AL) 18 May 1993 (1993-05-18) abstract; figures ---	1-14
X	WO 92 17621 A (CONNER PERIPHERALS INC) 15 October 1992 (1992-10-15) page 21, line 9 - line 14 page 28, line 2 - line 6 abstract; figure 1 ---	13
A		14
A	DE 43 13 284 A (LEYBOLD AG) 27 October 1994 (1994-10-27) column 2, line 25 -column 3, line 57; figure -----	13,14

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 99/02208

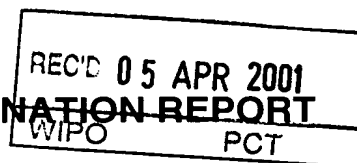
Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 0689962	A	03-01-1996	JP	8011631 A	16-01-1996
			US	5594585 A	14-01-1997
EP 0820967	A	28-01-1998	JP	2901550 B	07-06-1999
			JP	10036144 A	10-02-1998
			US	5854708 A	29-12-1998
EP 0637572	A	08-02-1995	GB	2280699 A	08-02-1995
US 5733660	A	31-03-1998	JP	2895749 B	24-05-1999
			JP	7315882 A	05-12-1995
			JP	2895746 B	24-05-1999
			JP	7315879 A	05-12-1995
US 5762674	A	09-06-1998	AU	6917596 A	17-04-1997
			EP	0852570 A	15-07-1998
			WO	9711916 A	03-04-1997
			US	5876474 A	02-03-1999
US 5211759	A	18-05-1993	DE	59202577 D	27-07-1995
			EP	0502385 A	09-09-1992
WO 9217621	A	15-10-1992	EP	0577766 A	12-01-1994
			JP	6510565 T	24-11-1994
			US	5814196 A	29-09-1998
			US	5683561 A	04-11-1997
DE 4313284	A	27-10-1994	NONE		

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)



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Applicant's or agent's file reference 4263.49.96.1		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US99/02208	International filing date (day/month/year) 02/02/1999	Priority date (day/month/year) 21/12/1998	
International Patent Classification (IPC) or national classification and IPC C03C17/34			
Applicant CARDINAL IG COMPANY et al.			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 8 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 21/07/2000	Date of completion of this report 04.04.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized officer Van Bommel, L Telephone No. +31 70 340 2747 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US99/02208

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).):*

Description, pages:

1-31 as originally filed

Claims, No.:

1-14 as originally filed

Drawings, sheets:

1/10-10/10 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US99/02208

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
☒ paid additional fees.
☐ paid additional fees under protest.
☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
☒ not complied with for the following reasons:
see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-14
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-14
	No:	Claims	

**INTERNATIONAL
EXAMINATION**

Re Foundg

International application No. PCT/US99/02208

Industrial applicability (IA)

Yes
No:

-14

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

Re Item IV

Lack of unity of invention

This International Examining Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1 - 12

Sheet of glass with a reflecting coating on one surface and a water-sheeting coating on the other surface; methods for rendering a surface of a glass sheet resistant to soiling and staining by sputter coating a water-sheeting layer on one side of the glass sheet and a reflecting and/or dielectric layer on the other side.

2. Claims: 13 - 14

Method of sputter coating two sides of a glass pane in a single pass through a sputtering apparatus, regardless of the nature of the coating.

Since claim 1 does not define the deposition method of the reflecting layer and claim 13 does not define the nature of the coatings, the only common features between the invention as defined in claims 1 - 12 and the invention as defined in claims 13 - 14 are the application of two coatings to the two different surfaces of a glass sheet and the fact that (at least) one of the coatings is applied by sputtering.

These common features (common concept) are known in the prior art, see e.g. EP-A-689 962 (D1 cited in the International Search Report), so that there is no technical relationship among the subjects involving one or more of the same or corresponding special technical features. Therefore, the requirement of unity of invention is not fulfilled. Reference is made to Rule 13.1 and 13.2 PCT.

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Documents

Reference is made to the following documents:

D1: EP-A-0 689 962 (MURAKAMI KAIMEIDO KK) 3 January 1996

D2: EP-A-0 820 967 (MURAKAMI CORP) 28 January 1998

D3: EP-A-0 637 572 (CARADON EVEREST LTD) 8 February 1995

- D4: US-A-5 733 660 (TAKAMATSU ATSUSHI ET AL) 31 March 1998
D5: US-A-5 762 674 (WETMORE KENNETH H ET AL) 9 June 1998
D6: US-A-5 211 759 (ZIMMERMANN HEINRICH ET AL) 18 May 1993
D7: WO 92 17621 A (CONNER PERIPHERALS INC) 15 October 1992
D8: DE 43 13 284 A (LEYBOLD AG) 27 October 1994

2. Subject-matter

Claims 1 - 4 define a sheet of glass with a reflecting coating, comprising a reflective metal layer and at least one dielectric layer, on one surface and a non-porous sputtered silica water-sheeting coating on the other surface.

Claims 5 - 12 define methods for rendering a surface of a glass sheet resistant to soiling and staining by sputter coating a water-sheeting layer on one side of the glass sheet and at least a dielectric layer on the other side.

Claims 13 - 14 define a method of sputter coating two sides of a glass pane in a single pass through a sputtering apparatus, involving both downward and upward sputtering.

3. Novelty

D1 discloses a vehicle mirror with a sputtered porous silica water-spreading coating on one side of the glass substrate and a metal reflective coating on the other side.

D2 discloses a coated substrate similar to the one of D1, but then with a photocatalytic coating under the porous silica water-spreading layer.

The subject-matter of claims 1 - 4 differs from D1 and D2 in that the silica water-spreading coating is **non-porous** and in the presence of a **dielectric layer** on the other side of the substrate.

The subject-matter of claims 5 - 12 differs from D1 and D2 in the **sputter** deposition of a **dielectric layer** on the other side of the substrate.

D3 - D6 describe glass sheets with coatings on both sides. The subject-matter of claims 1 - 12 differs from D3 - D6 in that a water-sheeting coating is present or deposited on one side of the glass substrate.

D7 describes a sputter deposition process, that can be used for coating glass sheets and can be used for coating on both sides of the substrate. The sputtering takes place in a sideways fashion.

The subject-matter of claims 13 and 14 differs from D7 in that **upward and downward**

sputtering takes place, instead of lateral sputtering.

D8 describes a sputtering process with different sputtering chambers, with downward and upward sputtering for different substrates.

The subject-matter of claims 13 and 14 differs from D7 in that the upward and downward sputtering is applied on the same substrate.

Therefore, the subject-matter of claims 1 - 12 is new with respect to relevant documents D1 - D6 and the subject-matter of claims 13 and 14 is new with respect to relevant documents D7 and D8.

4. Inventive step

D1 is considered as the closest prior art for claims 1 - 12.

The differences between the subject-matter of claims 1 - 4 of the application and D1 are mentioned above and solve a problem of improving the water-sheeting properties of the glass sheet. The differences between the subject-matter of claims 5 - 12 of the application and D1 are also mentioned above and solve a problem of economizing the deposition process.

None of the differences as mentioned above can be seen as obvious with regard to the teaching of D1, so that inventive step is acknowledged for claims 1 - 12.

D7 is considered as the closest prior art for claims 13 and 14. The differences between the subject-matter of claims 13 and 14 of the application and D7 are mentioned above and solve a problem of economizing the sputtering process for dual direction sputtering. The differences as mentioned above cannot be seen as obvious with regard to the teaching of D7, so that inventive step is acknowledged for claims 13 and 14.

Re Item VII

Certain defects in the international application

1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 - D8 is not mentioned in the description, nor are these documents identified therein.
2. The units "mTorr" and "inches" employed on page 22 are not additionally expressed in terms of the units stipulated by Rule 10.1(a) PCT.

Re Item VIII

Certain observations on the international application

1. Although claims 1, 5, 10 and 12 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and/or in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness. Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection.

Hence, the claims do not meet the requirements of Article 6 PCT.

2. The vague and imprecise statement in the description on page 31 implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (Article 6 PCT) when used to interpret them (see also the PCT Guidelines, III-4.3a).